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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,075	06/21/2007	Hubert Koch	056226.57663US	1578

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EXAMINER

WALCK, BRIAN D

ART UNIT	PAPER NUMBER
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1793

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/579,075	Applicant(s) KOCH ET AL.	
	Examiner Brian Walck	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17 and 20-43 is/are pending in the application.
- 4a) Of the above claim(s) 40-43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17 and 20-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

1. Claims 1-16 and 18-19 are canceled. Claims 17 and 20-43 are pending where claims 17 and 20-43 have been amended. Claims 40-43 are withdrawn from consideration and claims 17 and 20-39 remain for examination on the merits.

Status of Previous Rejections

2. The previous objections to the specification have been withdrawn in view of amendments to the disclosure.
3. The previous claim objections and § 103 rejection of the claims over Okita in view of Sanders have been withdrawn in view of amendments to the claims.
4. The previous 35 USC § 112 and § 103 rejections of the claims over Spanjers in view of Lyle and Chakrabarti in view of Lyle and Sanders have been maintained.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
8. **Claims 17, 20-29, 31-33, 35-37, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 1138794 A1 to Spanjers et al (cited in previous office action) in view of the evidentiary reference of the article titled "Aluminum Alloys" by Lyle et al from Ullmann's Encyclopedia of Industrial Chemistry (cited in previous office action).**

Regarding claim 17, Spanjers discloses a cast aluminum alloy comprising the following composition (Spanjers, abstract), which overlaps the instantly claimed composition:

Element	Claimed wt%	Spanjers wt%	Overlap
Mg	3-6	2.7-6.0	3-6.0
Si	>1-4	0-1.4	1-1.4
Sc	0.01-<0.5	0-0.3	0.01-0.3

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Ti	0.005-0.2	0-0.2	0.005-0.2
Zn	0-0.05	0.10-1.5	Close at ~0.05-0.1
Zr	0-0.5	0-0.3	0-0.3
Mn	0-0.8	0.4-1.4	0.4-0.8
Cr	0-0.3	~0	~0
Cu	0-1.0	~0	~0
Fe	0-0.6	0-1	0-0.6
Be	0-0.004	~0	~0
Al	Balance	Balance	Balance

In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists (see MPEP 2144.05 [R-5]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected values for the composition of each element that lie within the instantly claimed ranges because Spanjers discloses the same utility throughout the disclosed ranges.

Regarding the Zn concentration of instant claims 17 and 35, although the Zn concentrations of Spanjers does not overlap with the instantly claimed composition, a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties (See MPEP 2144.05 [R-5]). In the instant case, a Zn

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content of 0.1 is close enough to a Zn content of 0.05 that one of ordinary skill in the art would expect otherwise identical alloys to have the same properties.

Regarding claims 20-29, 33, 36-37, and 39, the alloy of Spanjers overlaps the additional compositional limitations of instant claims 20-29, 33, 36-37, and 39.

Regarding claims 31-32, Spanjers does not explicitly disclose the concentration of Cr in the alloy. However, Spanjers discloses that the alloy contains inevitable impurities (Spanjers, abstract). Lyle discloses that commonly produced aluminum alloys contain Cr as an impurity in an amount between 0.005-0.020 (Lyle, page 12, "3.1.1. Impurities in the Molten Metal"), which lies within the instantly claimed Cr content ranges of 0.001-0.3 or 0.0015-0.2. Therefore, the claimed Cr content would have been expected in the alloy of Spanjers as evidenced by Lyle.

9. Claims 17, 20-24, 26-35, and 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,055,257 to Chakrabarti et al (cited in previous office action) in view of the evidentiary references of the article titled "Aluminum and Aluminum Alloys" by Sanders from the Kirk-Othmer Encyclopedia of Chemical Technology (cited in previous office action) and the article titled "Aluminum Alloys" by Lyle et al from Ullmann's Encyclopedia of Industrial Chemistry (cited in previous office action).

Regarding claim 17, Chakrabarti discloses an alloy comprising the following composition (Chakrabarti, column 3, lines 21-40), which overlaps the instantly claimed composition:

Element	Claimed wt%	Chakrabarti wt%	Overlap
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Mg	1-8	3.5-4.5	3.5-4.5
Si	>1-4	0-5	>1-4
Sc	0.01-<0.5	0.2-0.8	0.2-<0.5
Ti	0.005-0.2	~0	Indeterminate
Zn	0-0.05	0-10	0-0.05
Zr	0-0.5	~0	~0
Mn	0-0.8	0-1.5	0-0.8
Cr	0-0.3	~0	~0
Cu	0-1.0	0-5	0-1.0
Fe	0-0.6	~0	~0
Be	0-0.004	~0	~0
Al	Balance	Balance	Balance

Regarding the Ti content of instant claims 17 and 24, Chakrabarti discloses that the alloy contains inevitable impurities (Chakrabarti, column 3 lines 21-40). Sanders discloses that aluminum alloys typically contain Ti as an impurity in an amount below 100 ppm (Sanders, page 305, "11. Aluminum Alloys"), i.e. in an amount from 0-0.01 wt%, which overlaps the instantly claimed Ti content in the range of 0.005-0.01, and Lyle discloses that Ti is found in aluminum alloys in a usual concentration of 0.005-0.02 wt% (Lyle, page 12, "3.1.1. Impurities in the Molten Metal"), which overlaps the instantly claimed Ti content in the range of 0.005-0.2. Titanium would be expected to be presented in the alloys of Sanders in an amount overlapping the instantly claimed

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composition because both Sanders and Lyle state that Ti is present as an unavoidable impurity in aluminum alloys in an amount overlapping the instantly claimed composition.

In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists (see MPEP 2144.05 [R-5]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected values for the composition of each element that lie within the instantly claimed ranges because Chakrabarti discloses the same utility throughout the disclosed ranges.

Note although Chakrabarti never specifically refers to the alloy as a “cast aluminum alloy,” the limitation of “cast” does not appear to imply any structural or compositional limitations that the alloy of Chakrabarti does not possess.

Regarding claims 20-23, 33-35, 38-39, the alloy of Chakrabarti overlaps the additional compositional limitations of instant claims 20-29, and 31-39.

Regarding claims 26 and 27, Chakrabarti discloses that Zr can be present in the alloy in an amount up to 0.3% (Chakrabarti, column 11, lines 27-55) which overlaps the instantly claimed Zr content.

Regarding claim 28-29, Sanders discloses that aluminum alloys contain V and as an impurity in an amount below 100 ppm (Sanders, page 305, “11. Aluminum Alloys”), i.e. in an amount from 0-0.01 wt%, which overlaps the instantly claimed V content ranges.

Regarding claim 30, Chakrabarti discloses that Gd may be present in an amount from 0.01-4 (Chakrabarti, column 8, lines 37-65), which overlaps the instantly claimed range of at least 0.001 % by weight gadolinium.

Regarding claims 31-32, Chakrabarti does not explicitly disclose the concentration of Cr in the alloy. However, Chakrabarti that the alloy contains inevitable impurities. Lyle discloses that commonly produced aluminum alloys contain Cr as an impurity in an amount between 0.005-0.020 (Lyle, page 12, “3.1.1. Impurities in the Molten Metal”), which lies within the instantly claimed Cr content ranges of 0.001-0.3 or 0.0015-0.2. Therefore, the claimed Cr content would have been expected in the alloy of Chakrabarti as evidenced by Lyle.

10. Claims 17, 20-29, 31-34, and 36-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 3,619,181 to Willey.

Regarding claim 17, Willey discloses a cast aluminum alloy comprising the following composition (Willey, column 1 line 20- column 2 line 23), which overlaps the instantly claimed composition:

Element	Claimed wt%	Willey wt%	Overlap
Mg	3-6	0.5-10	3-6
Si	>1-4	0.3-1.5	>1-4
Sc	0.01-<0.5	0.2-0.6	0.2-<0.5
Ti	0.005-0.2	0.01-0.15	0.01-0.15
Zn	0-0.05	~0 or 0.5-10	~0
Zr	0-0.5	0.05-0.25	0.05-0.25

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Mn	0-0.8	~0 or 0.15-2.0	0 or 0.15-0.8
Cr	0-0.3	0.05-0.4	0.05-0.3
Cu	0-1.0	0 or 0.5-10	~0 or 0.5-1.0
Fe	0-0.6	0.3-2.0	0.3-0.6
Be	0-0.004	~0	~0
Al	Balance	Balance	Balance

In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists (see MPEP 2144.05 [R-5]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected values for the composition of each element that lie within the instantly claimed ranges because Willey discloses the same utility throughout the disclosed ranges.

Regarding claims 20-27, 31-34, 36-39, the alloy of Willey overlaps the additional compositional limitations of instant claims 20-27, 31-34, 36-39.

Regarding claims 28-29, Willey discloses that the alloy can contain 0.05-0.25 wt% vanadium (Willey, column 1 line 20- column 2 line 23), overlapping the instantly claimed vanadium content ranges.

Response to Arguments

11. Applicant's arguments filed 1/12/2010 have been fully considered but they are not persuasive.

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Applicant argues that the instant claims are patentable over Spandjers because Spanjers teaches a Zn content of 0.10-1.5 whereas the instant claims recite a Zn content of 0-0.05 wt%. This is not found persuasive because although the Zn concentrations of Spanjers does not overlap with the instantly claimed composition, a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties (See MPEP 2144.05 [R-5]). In the instant case, a Zn content of 0.1 is close enough to a Zn content of 0.05 that one of ordinary skill in the art would expect otherwise identical alloys to have the same properties.

Applicant argues that the instant claims are patentable over Chakrabarti because Chakrabarti teaches a significantly higher Zn content of between 0.1 and 10 or 20 wt%. This is not found persuasive because Zn is an optional element in Chakrabarti and the broad disclosure of Chakrabarti discloses a Zn content of between 0 and 10 wt%.

Applicant argues that the instant claims are patentable over Chakrabarti because Chakrabarti teaches away from the addition of Ti to the alloy. This is not found persuasive because the instantly claimed Ti content range falls within the range of the **unavoidable impurity** level of Ti as disclosed in Sanders and Lyle.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Walck whose telephone number is (571)270-5905. The examiner can normally be reached on Monday-Friday 9 AM-6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571)272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Brian Walck/
Examiner, Art Unit 1793
/Scott Kastler/
Primary Examiner, Art Unit 1793